SERVICE MANUAL

DV11 / DVD100 / U2 / U3

Date	Revise Version	Description
2007.03.28	V1.0	Initial Issue
2007.07.02	V2.0	Edit 2-24, 4-4, 4-6, 4-10, 5-1, 5-3 and 5-4
2007.08.10	V3.0	Edit 5-4, 6-4, Appendix B. Add 5-5 and 5-6
2009.03.05	V4.0	Add DV11 extended models: DVD100, U2, U3 (modify 2-25 of Chapter 2 and Chapter 3)

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SI : Sara TSE: Andy Check: Alick Approved: C.C Chen

DV11 / DVD100 / U2 / U3 Comparison List

Parts	DV11	DVD100	U2	U3
TOP COVER MODULE	75.85E16G001	75.85E16G011	75.85E22G001	
MAIN BD MODULE	70.85E36GR01 (USA)	70.85E40GR01	70.85E39GR01	
	70.85E40GR01 (EMEA)			
LAMP COVER	51.85E14G002 (USA)	51.85E14G001		
	51.85E14G001 (EMEA)			
REAR COVER MODULE	75.85E09G001		75.85E23G001	

Preface

This manual is applied to DV11 / DVD100 / U2 / U3 projection system. The manual gives you a brief description of basic technical information to help in service and maintain the product.

Your customers will appreciate the quick response time when you immediately identify problems that occur with our products. We expect your customers will appreciate the service that you offer them.

This manual is for technicians and people who have an electronic background. Please send the product back to the distributor for repairing and do not attempt to do anything that is complex or is not mentioned in the troubleshooting.

Notice:

The information found in this manual is subject to change without prior notice. Any subsequent changes made to the data herein will be incorporated in future edition.

DV11 / DVD100 / U2 / U3 Service Manual

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Manual Version 4.0

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Appendix A

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Appendix B

Serial Number System Definition IX

PCBA Code Definition X

Chapter 1

Introduction

1-1 Highlight

No	Item	Description
1	Dimensions (L x W x H)	● 15.0” x 10.9” x 5.5” (379.8 x 277.8 x 138.7 mm)
2	Weight	● 8.3 lb
3	Tilt Angle	● Adjustable Feet angle Front tilt 8°
4	Power Supply	● Universal 100~240VAC +/-10%, 50-60 Hz with PFC input 180W for Phoenix Lamp
5	Light source	● Lamp could be changed by customer, but should follow the user manual instruction. ● Replaceable Lamp should be provided by Coretronic or its authorized agencies
6	Keystone correction	● Vertical: +/- 16 deg (Ref, Limited by DDP2000)
7	Color	● Pearl white for top and black for side and bottom
9	Cooling system	● Advanced Air Flow Two motor fans (one blower fan and one axial fan) Temperature control circuits with adaptive voltage control fan speed ● Max touch temperature follows UL60950-1 regulation
10	Brightness	● Typical 1100 ANSI lm ● Minimum 900 ANSI lm
11	Contrast	● Full on / Full off :Typical 1800 : 1 ● Minimum 1300 : 1 (Spoke on/Spoke off)
12	Uniformity	● Typical Japan 85% /Minimum 75% (Full on)
13	Throw ratio	● 1.36 ~1.50 (Projection Distance/Image Width)
14	Lamp door protection	● Lamp power supply shuts off automatically when door open
15	Projection lens	● f = 15.06 ~ 16.78 mm, F/2.8, 1.1X.
16	Lamp life	● 180Watt Phoenix Lamp. Lamp life 1500 hours based on Phoenix DC lamp specification
17	System controller	● TI DDP2000

No	Item	Description
18	Video compatibility	● Standards : (Should be frame lock) PAL B,G,D,H,I,M,N NTSC M NTSC-Japan NTSC 4.43 SECAM ● Standard TV Display Formats : 480i, 480p, 576i/p, 720p 50 & 60Hz, 1080i 50 & 60Hz Support SCART RGB via D-SUB (VGA)
19	Intelligent zoom	● By using “TI DDP2000” Chips to provide excellent quality zooming.
20	SXGA / Compression	● By using “DDP2000” Chips to compress SXGA image into SVGA display
21	Power consumption	● Full power 245W +-10 % at 110Vac Standby < 12W
22	Color wheel	● R92/Y83/G75/W110
23	Lamp	● E20.6 260W Phoenix
24	Temperature	● Operating: 5°C -- 35°C (Satisfied engineering specification & functions) ● Storage: -10°C -- 60°C

1-2 Compatible Mode

Analog

Compatibility	Resolution	V-Sync [Hz]	H-Sync [KHz]
VGA	640x350	70	31.46
	640x400	60	31.46
	640x480	72	37.86
	640x480	75	37.5
	640x480	85	43.26
	720x400	70	31.46
	720x400	85	37.92

Compatibility	Resolution	V-Sync [Hz]	H-Sync [KHz]
SVGA	800x600	56	35.15
	800x600	60	37.87
	800x600	72	48.07
	800x600	75	46.87
	800x600	85	53.67
XGA	1024x768	60	48.36
	1024x768	70	56.47
	1024x768	75	60.02
	1024x768	85	68.67
SXGA	1280x1024	60	64.31
MAC (G4)	640x480	60	31.4
	640x480	72	37.41
	640x480	75	37.5
	640x480	85	43.26
	800x600	56	35.15
	800x600	60	37.81
	800x600	72	48.13
	800x600	75	46.87
	800x600	85	53.67
	1024x768	60	48.27
	1024x768	70	56.47
	1024x768	75	60.2
	1024x768	85	68.67
	1152x870	75	68.76

Chapter 2

Disassembly Process

2-1 Equipment Needed & Product Overview

1. Screw Bit (+) :107
2. Hex Sleeves 5mm
3. Hex Sleeves 8mm
4. Tweezers
5. Projector

** Before you start: This process is protective level II. Operators should wear electrostatic chains.*

** Note: - If you need to replace the main board, you have to get into service mode and record the lamp usage hour. please refer to section 2-25.*

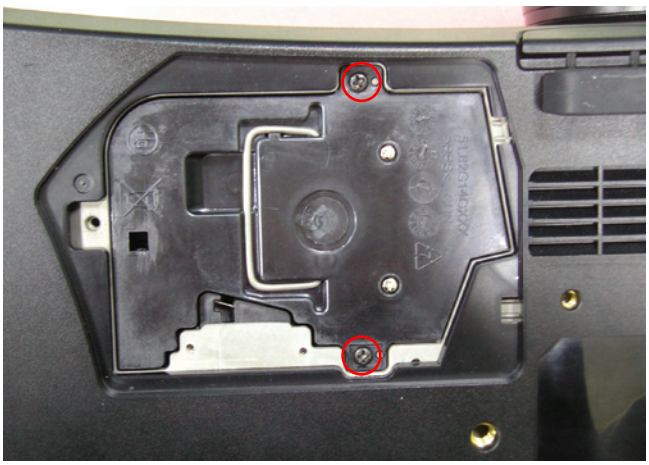
- As the process of DVD100 / U2 / U3 disassembling is the same as DV11, we take DV11 for example here.

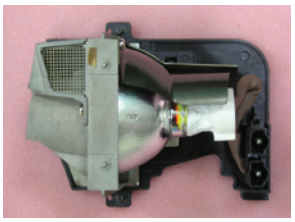
2-2 Disassemble Lamp Cover

1. Unscrew 1 screw on the lamp cover

2-3 Disassemble Lamp Module

1. Unscrew 2 screws on the lamp module





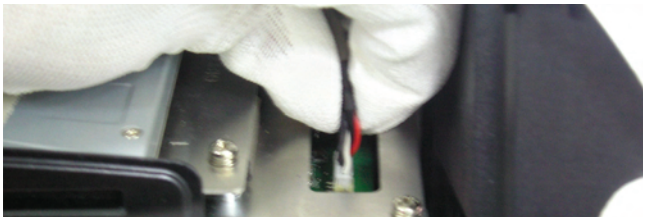
2-4 Disassemble Top Cover Module

1. Unscrew 6 screws on the unit base

Note: - Avoid damage by pulling and dragging IR cable and keypad FPC cable.

- Hold the CNNT plug when pulling the FPC cable is strongly recommended. Pulling the cable directly from the unit will cause the cable damages.

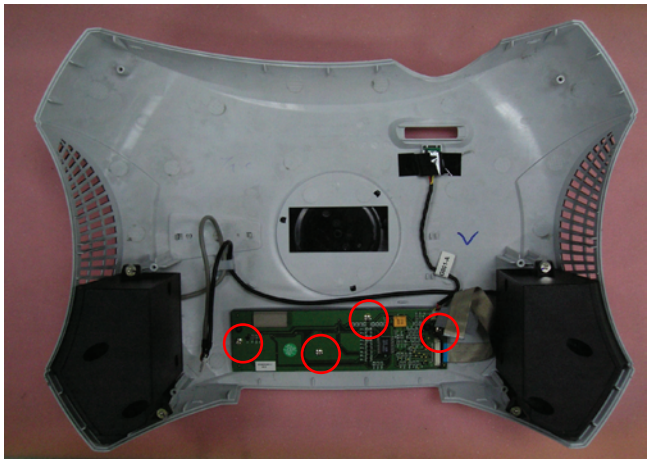
- Make sure cables are plug in the correct ports when assembling the unit.

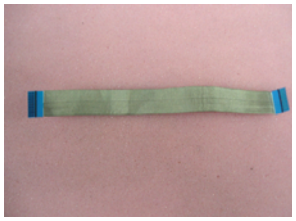


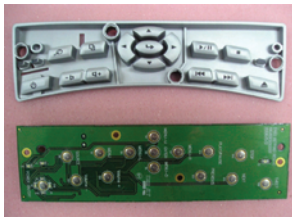
2-5 Disassemble Keypad Board

1. unscrew 4 screws on the keypad

Note: - Make sure cables plug into the correct ports when assembling the unit.

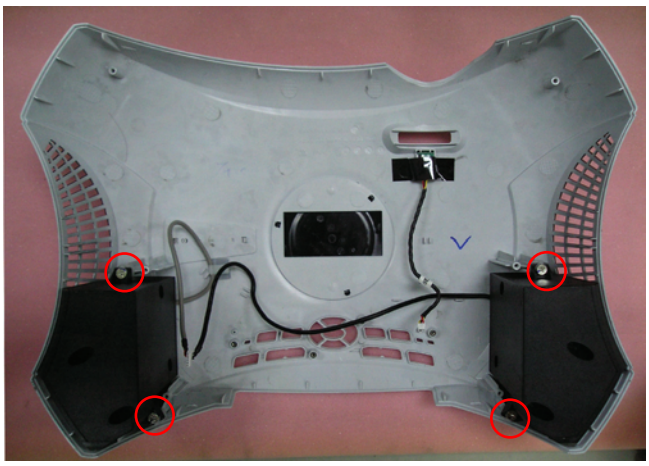


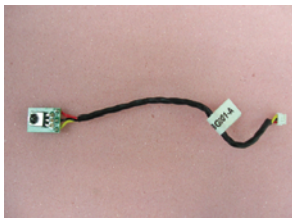




2-6 Disassemble Speaker Module

1. Unscrew 4 screws on the speaker



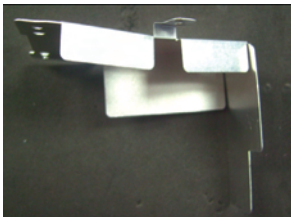


2-7 Disassemble Front&Back Cover Module

1. Unscrew 2 screws and take out the back cover

2-8 Disassemble EMI Front Cover

1. Unscrew 3 screws on the EMI front cover

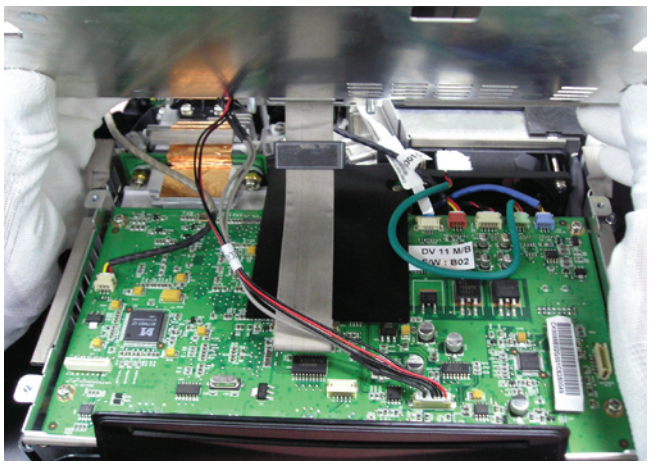


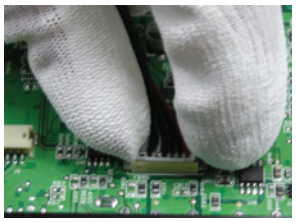
2-9 Disassemble DVD Module

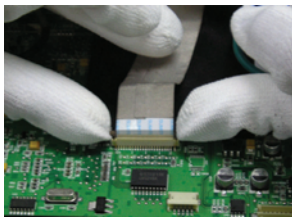
1. Unscrew 4 screws on the system

Note: - *Use two fingers to pull out the cover*

- *Refer to the image on the bottom right corner to unplug the cables*





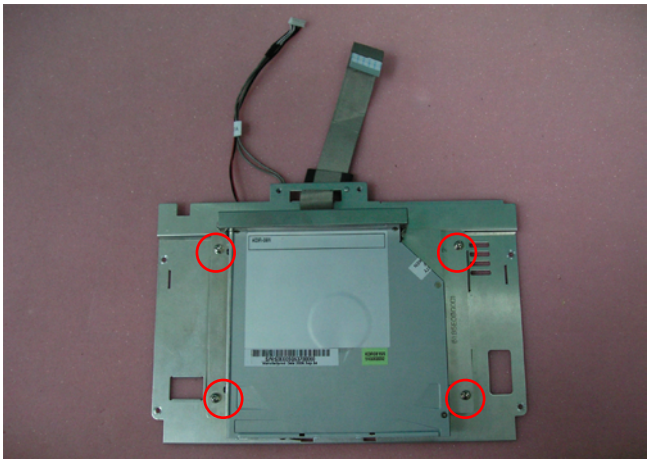


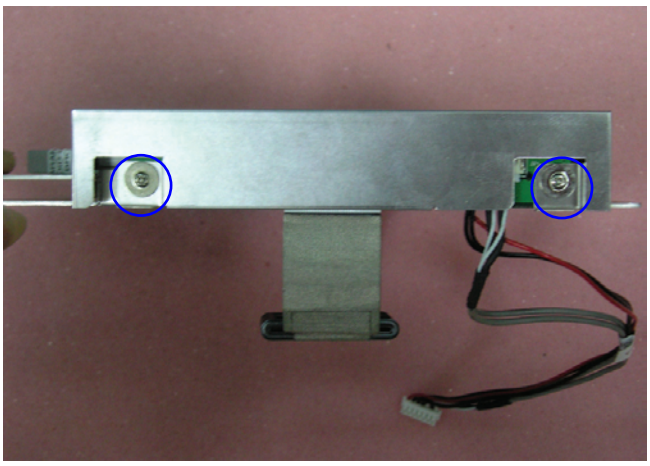
2. Unscrew 4 screws on the DVD module.

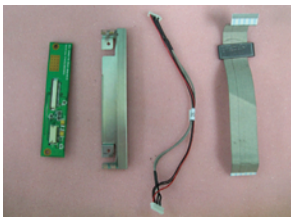
3. Unscrew 2 screws and take out the connector board

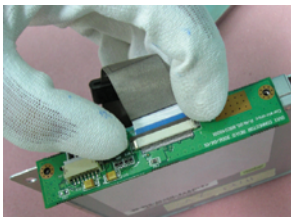
Note: - Make sure cables plug into the correct ports when assembling the unit.

- When you disassemble the FPC cable, you should use two figures to parallel pull out the hook.









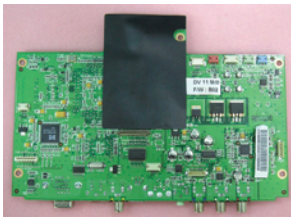
2-10 Disassemble MB Module

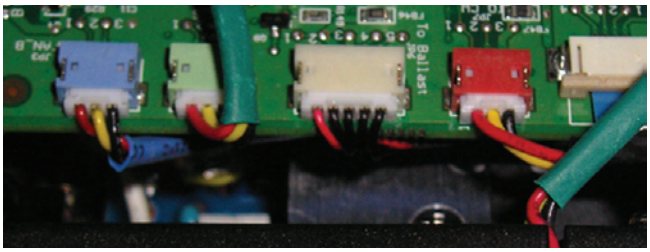
1. Unscrew 5 screws on the main board
2. Unplug the IR cable on the main board and take out the front cover

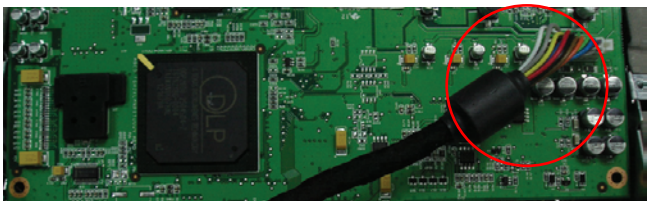
Note: - *Each cable should be plug into the correct ports.*

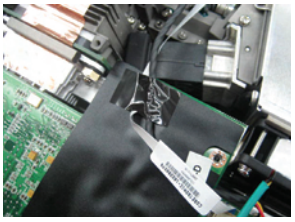
- *Avoid cables interrupt with system fan when organizing the cables. (see images)*

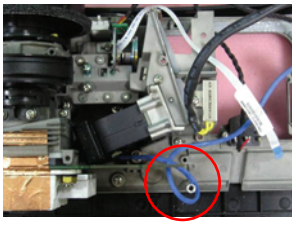
- *Use an electrostatic ion gun to puff the main board connector*





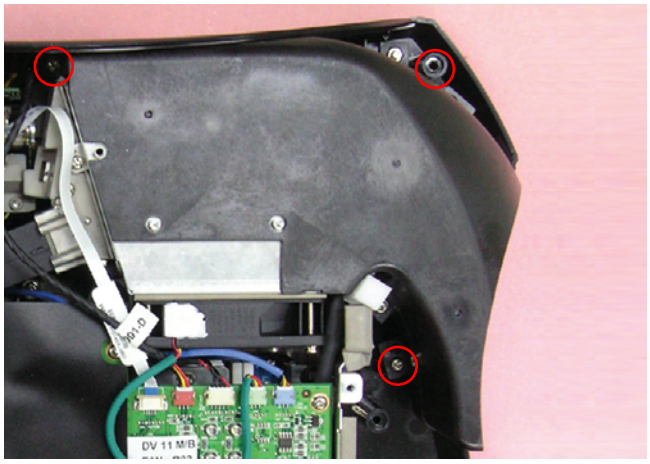






2-11 Disassemble Air Cut Module

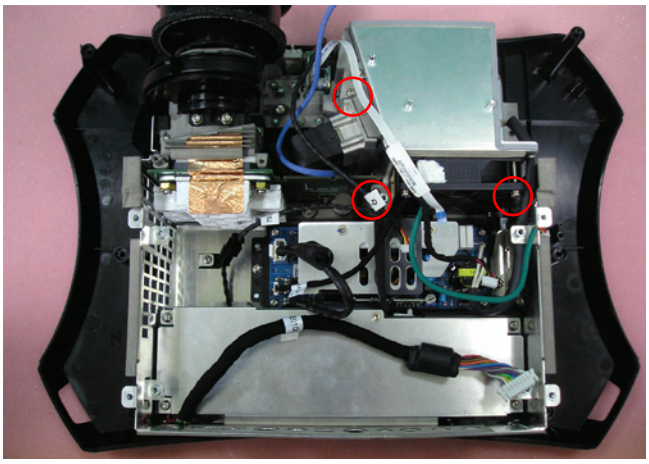
1. Unscrew 3 screws and take out the air cut module

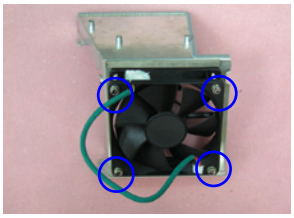


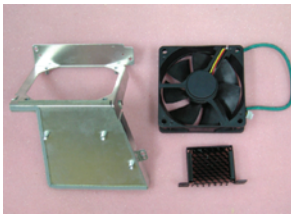
2-12 Disassemble System Fan Module

1. Unscrew 3 screws on the fan module

2. Unscrew 4 screws on the system fan

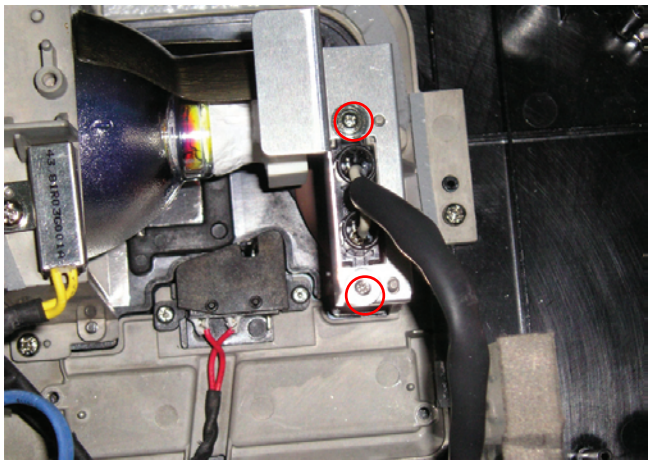


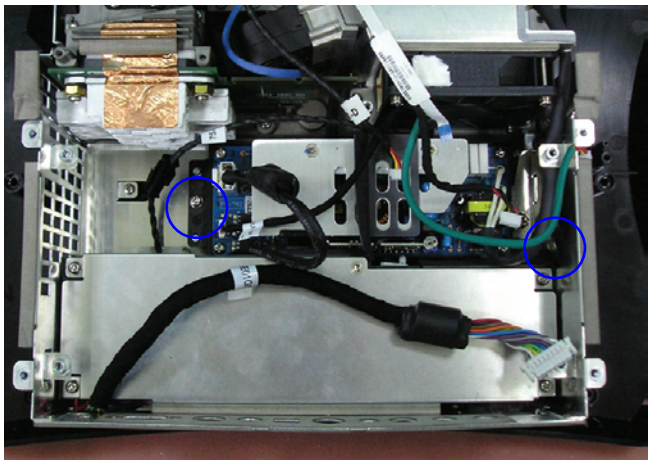


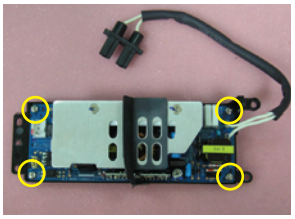


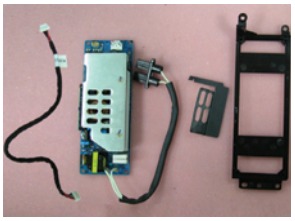
2-13 Disassemble Lamp Driver Module

1. Unscrew 2 screws and take out the lamp line
2. Unscrew 2 screws to take out the lamp driver from bottom cover
3. Unscrew 4 screws to separate the lamp driver and lamp driver holder



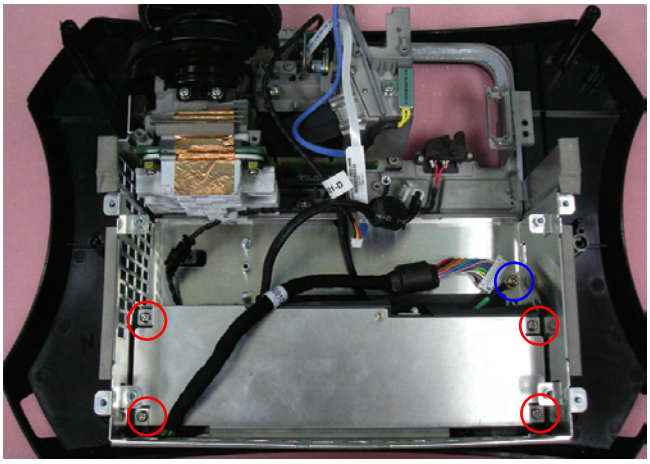


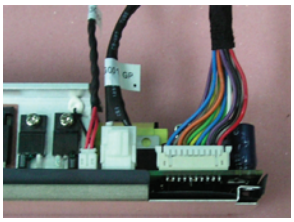




2-14 Disassemble LVPS Module

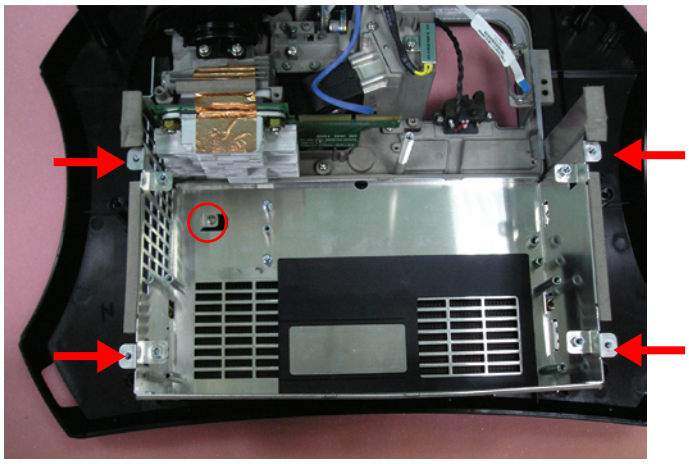
1. Unscrew 5 screws on the LVPS

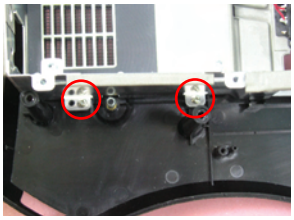


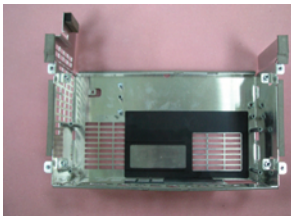


2-15 Disassemble Power Bracket

1. Unscrew 5 screws

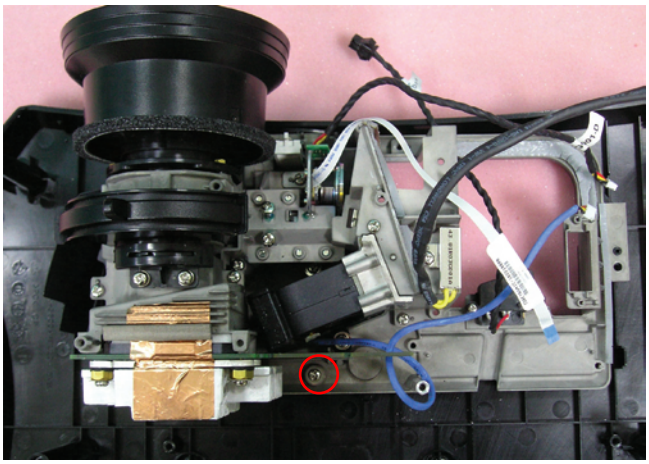


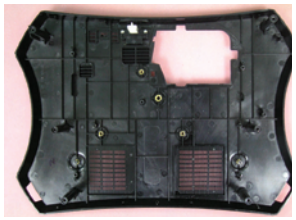


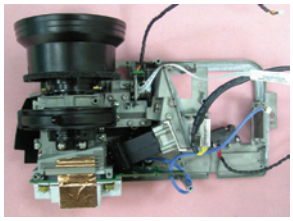


2-16 Disassemble Bottom Cover Module

1. Unscrew 1 screw on the bottom base

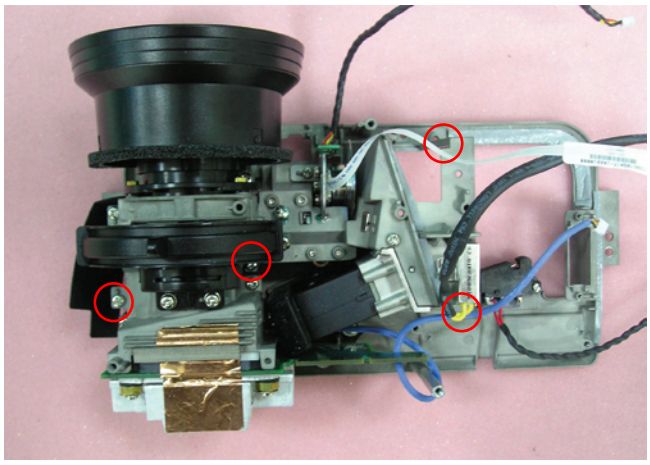


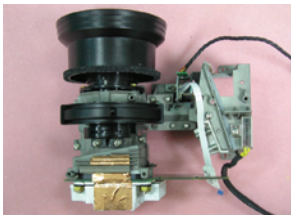


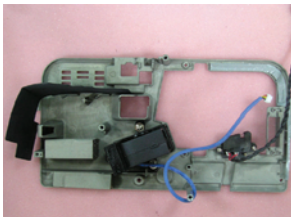


2-17 Disassemble Engine Module

1. Unscrew 4 screws on the engine module



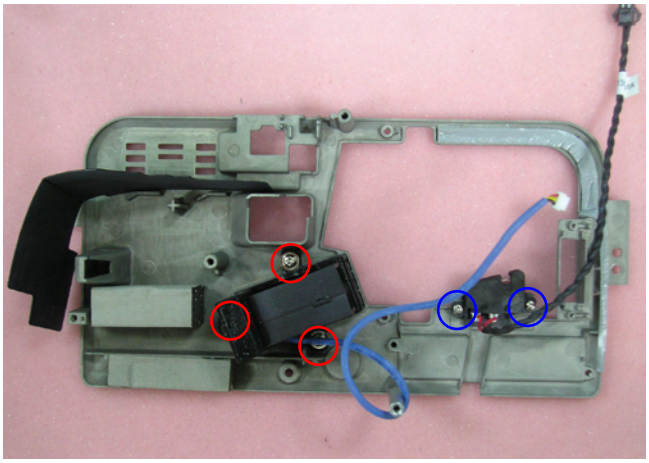


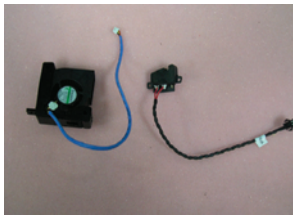


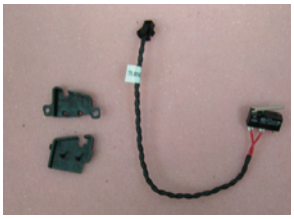
2-18 Disassemble Bottom Base Plate Module

1. Unscrew 3 screws on the blower fan

2. Unscrew 2 screws on the limit switch



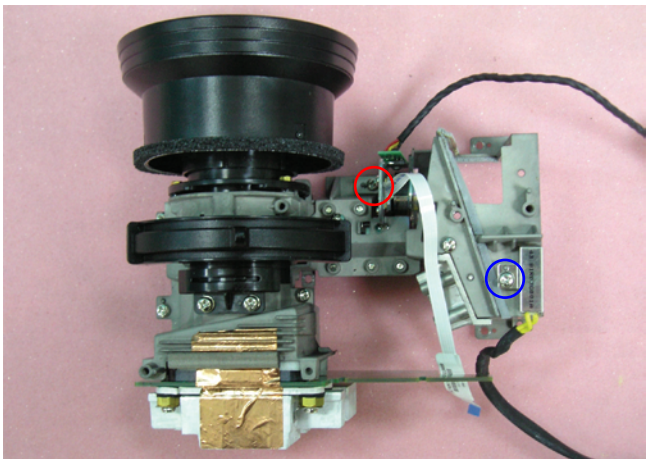


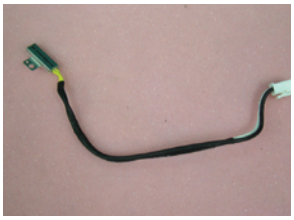


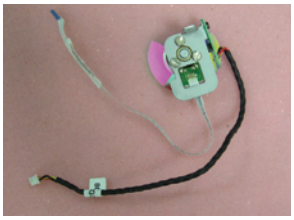
2-19 Disassemble Engine & color wheel

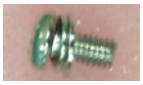
1. Unscrew 1 screw on the thermal switch

2. Unscrew 1 screw on the color wheel



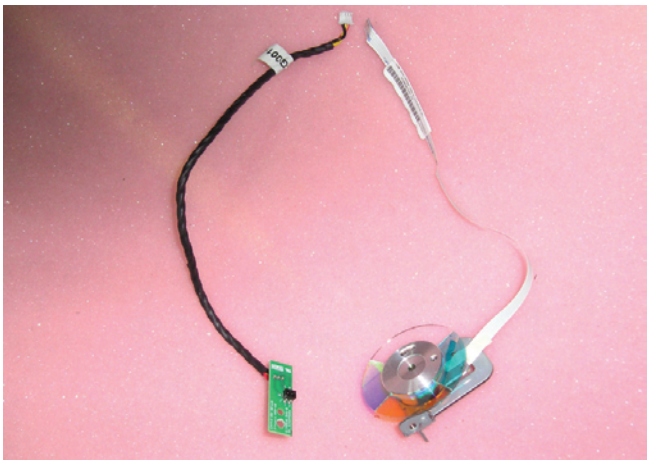


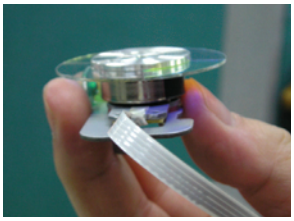




3. Unscrew 1 screw on the photo sensor board

Note: - The manner of holding a color wheel (see image)

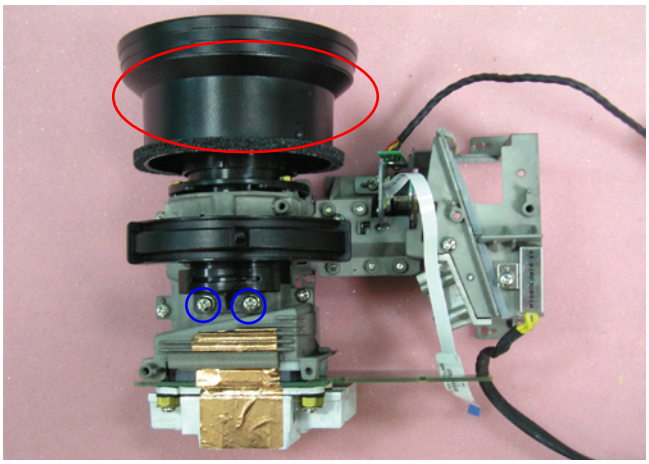


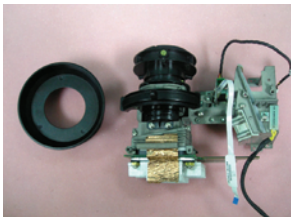


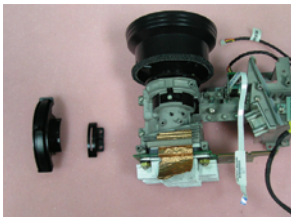
2-20 Disassemble Zoom Ring & Focus Ring

1. Unscrew 3 screws on the focus ring

2. Unscrew 2 screws on the zoom ring







2-21 Disassemble DMD Chip

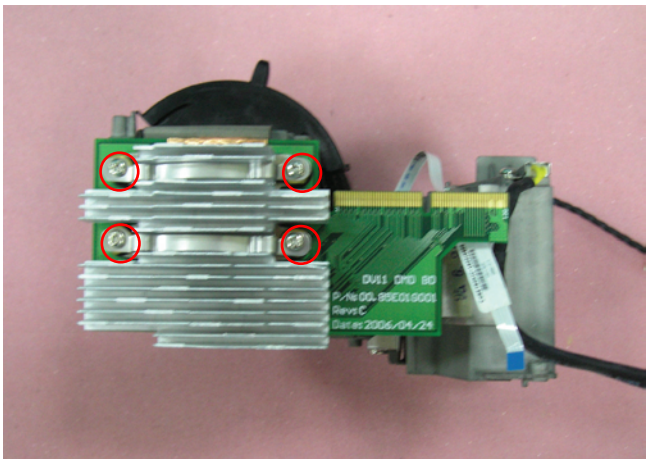
1. Unscrew 4 screws on the heatsink.
2. Unscrew 4 screws on the heatsink bracket.

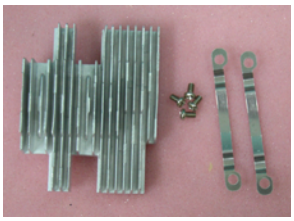
Note: - The manner of placing a DMD mask

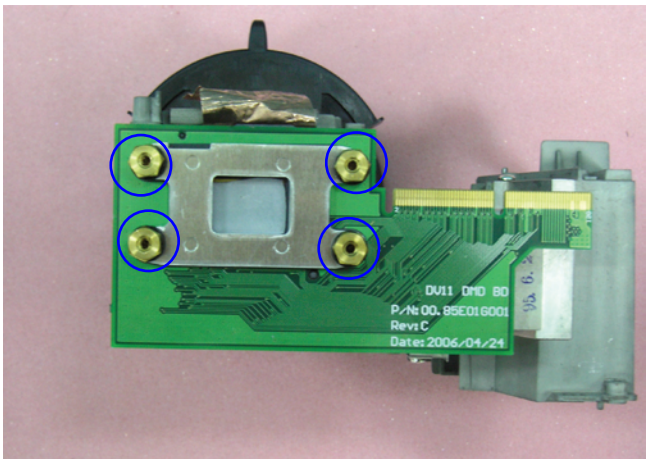
- Use an electrostatic ion gun to puff the engine room in the DMD mask

- If there are scrapes or dirt on the DMD chip when using a magnifying glass to have a close look, use an electrostatic ion gun to clean it.

- To double check and see if the pin is out of shape.





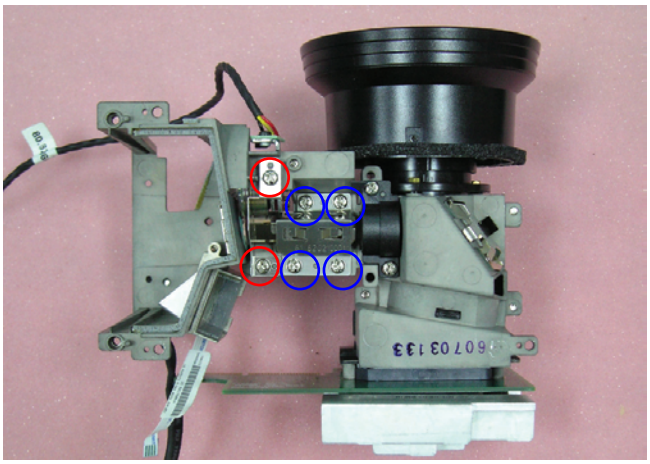


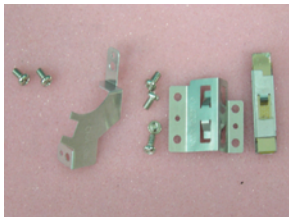
2-22 Rod Module

1. Unscrew 2 screws on the rod hide ray plate
2. Unscrew 4 screws on the rod fix plate

Note: - To make sure that rod and rod fix plate are placed next to each other.

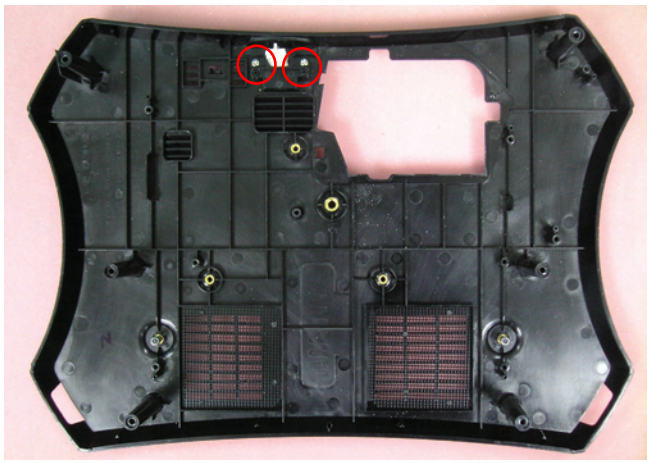
- If there is dirt on the interior of the rod, please use an electrostatic ion gun to clean it.

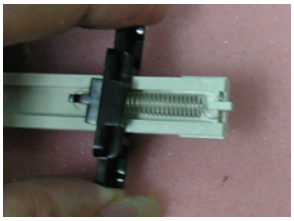


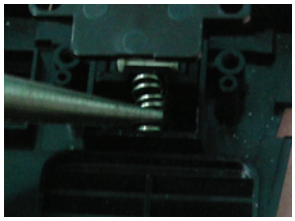


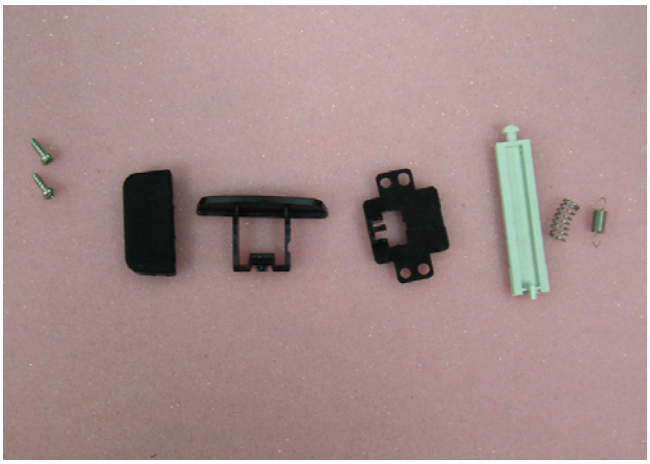
2-23 Bottom Cover Module & Elevator

1. Unscrew 2 screws on the elevator
2. When disassembling the springs, please refer to the bottom images.

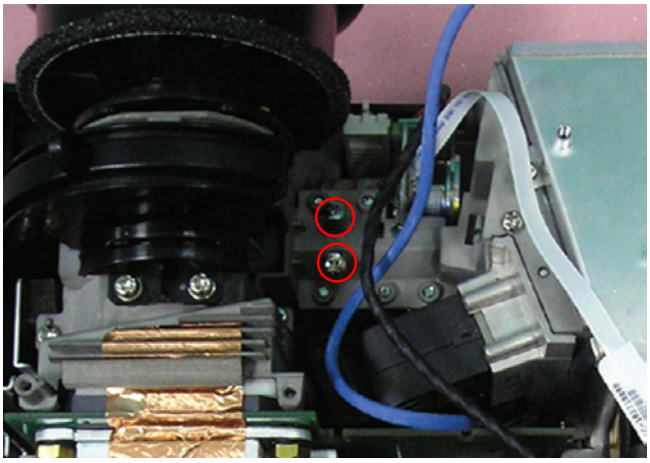








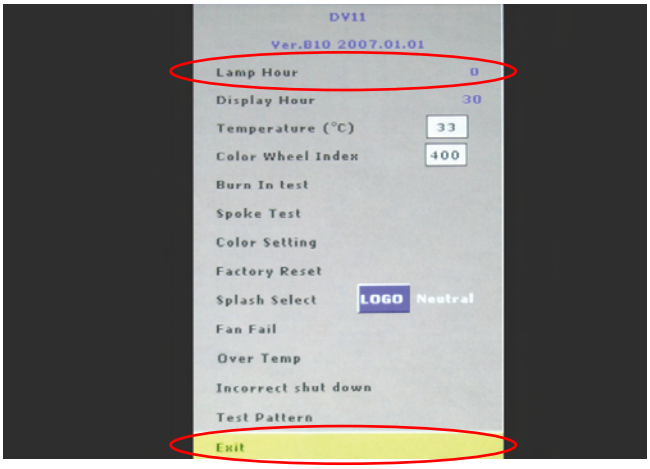
2-24 Rod Adjustment



1. environment adjustment
   - The distance between the engine and the screen is 1.7 M
   - This process should be done at a dark environment. (under 5 Lux)
2. Procedure adjustment
   - Change the screen to “white screen.”
   - Adjust the screws by using the rod on the engine module to readjust the image. (adjust until the yellowish or bluish parts disappeared.)
3. Abnormal image inspection
   - It should not have any abnormal color at the rim of the image by estimating through the eyes.

Note: To avoid over adjusting the rod.
After adjusting, add green glue to fasten it.

2-25 Re-write Lamp Usage Hour



1. Get into service mode.
   - press (power > left > left > up) to get into service mode.
2. Use "up" or "down" key to select "Exit", then use "left" or "right" key to re-write the lamp hour back to previous lamp usage hour.
3. Press "Enter" to exit the service mode.

Note: left key = decrease lamp hour
right key =increase lamp hour

Chapter 3

Troubleshooting

3-1 LED Lighting Message

Message	Power LED (Green)	Power LED (Blue)	Temp LED (Red)	Lamp LED (Red)
Standby State (input power cord)	O	Flashing	O	O
Normal Mode	*	O	O	O
Cooling	Flashing	O	O	O
Error (Lamp failed)	O	O	O	*
Error (Fan failed)	O	O	Flashing	O
Error (Over Temp.)	O	O	*	O

* *Light on* O *Light off*

3-2 Main Procedure

No	Symptom	Procedure
1	No Power	- Ensure the Power Cord and AC Power Outlet are securely connected - Check Lamp Cover and Interrupt Switch - Ensure all connectors are securely connected and aren't broken - Check Lamp Driver - Check LVPS - Check Main Board
2	Auto Shut Down	- Check LED Status a. Lamp LED lights red - Check Lamp - Check Lamp Driver - Check Main Board - Check Color Wheel - Check Photo Sensor b. Temp LED lights red - Check Thermal Sensor - Check Thermal Switch - Check Fan c. Temp LED flashing red - Check Fan - Check Main Board

No	Symptom	Procedure
3	No Image	- Ensure the Signal Cable and Source work (If you connect multiple sources at the same time, use the "Source" button on the control panel to switch) - Ensure all connectors are securely connected and aren't broken - Check Main Board - Check DMD Board - Check Color Wheel - Check DMD Chip - Check Engine Module
4	No Light On	- Ensure all connectors are securely connected and aren't broken - Check Lamp Module - Check Lamp Driver - Check LVPS - Check Main Board
5	Mechanical Noise	- Check Color Wheel - Check Fan Module
6	Line Bar/Line Defect	- Check if the Main Board and the DMD Board are assembled properly - Check Main Board - Check DMD Board - Check DMD Chip
7	Image Flicker	- Do "Reset (All data)" of the OSD Menu - Ensure that the signal cables and source are work as well - Check Lamp Module - Check Color Wheel- Check DMD Board - Check Main Board

No	Symptom	Procedure
8	Color Abnormal	- Do “Reset (All data)” of the OSD Menu - Adjust Color Wheel Index - Check Main Board- Check DMD Board - Check Color Wheel
9	Poor Uniformity/ Shadow	- Ensure the projection screen without dirt - Ensure the projection lens is clean - Ensure the Brightness is within spec - Check rod alignment - Check Engine Module
10	Dead Pixel/Dust (Out of spec.)	- Ensure the projection screen without dirt - Ensure the projection lens is clean - Clean DMD Chip and Engine Module - Check DMD Chip- Check Engine Module
11	Garbage Image	- Ensure that the signal cables and source are work as well - Check Main Board - Check DMD Board
12	Remote Control/ Control Panel Failed	- Remote Control a.Check Battery b.Check Remote Controller c.IR receiver d.Check Main Board - Control Panel a.Check FPC b.Check keypad c.Check Main Board
13	Function Abnormal	- Do “Reset (All data)” of the OSD Menu - Check Main Board - Check DMD Board

No	Symptom	Procedure
14	Disk cannot be read	- Check if the disk is scratched. - Check if the anti-static protection of DVD Loader Module is unsoldered. - Check if the region code is correct or not. - Check DVD Loader Module.

Chapter 4

Function Test & Alignment Procedure

4-1 Test Equipment Needed

- IBM PC with XGA resolution
- DVD player with Multi-system (NTSC/PAL/SECAM), equipped “Component”, “S-Video”, “Composite” and "HDMI."
- HDTV Source (480P, 720P, 1080i)
- Minolta CL-100
- Quantum Data 802B or CHROMA2327 (Color Video Signal & Pattern Generator)
- After changing parts, check the information below.

4-2 Service Mode

1. Turn on the projector and input the signal
2. Do the following actions sequentially to get into service mode
   (1) Press power > left > left > up simultaneously.
   (2) Service mode will be shown after pressing "Menu" and "Enter" for 3 seconds.
   (3) After confirming the configuration, press "Menu" and exit.

4-3 OSD Reset

1. After final QC step, we have to erase all saved change again and resotre the OSD default setting. The following actions will allow you to erase all end-users' settings and restore the default setting:
   (1) Please get into OSD menu.
   (2) To execute "Reset" function.

4-4 Test Condition

- Circumstance brightness: Dark room less than 5.0 lux.
- Inspection distance: 1.7 m functional inspection.
- Screen size: 60 inches diagonal
- After repairing each DV11 / DVD100 / U2 / U3, the unit should be run-in (refer to the table below)

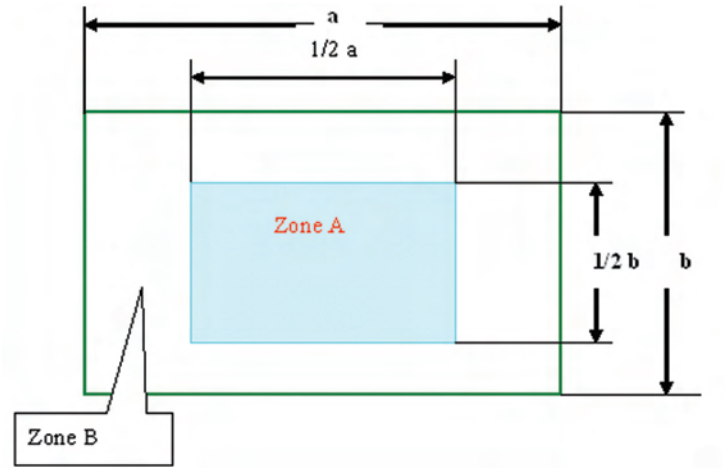
Symptom	Run-in Time
Normal repair	2 hours
NFF	4 hours
Auto shutdown	6 hours

- Get into Burn-In Mode

** Cycle setting is based on the defect symptoms. ie: If it is NFF, the run-in time is 4 hours. You have to set the lamp on for 50 min. and lamp off for 10 min for 4 cycles.*

Press power > left > left > up	
Choose Burn-In Test > enter	
Lamp On (Min)	Press right key to adjust the time (50)
Lamp Off (Min)	Press right key to adjust the time (10)
Set burn in cycle	Press right key to adjust the cycle
After setting up the time, choose Burn-In mode and hit enter	

Screen Defects (While replacing DMD Chip, DMD BD and MB)



< Figure: Zone A &B Definition >

4-5 Test Inspection Procedure

Change parts / Update	Main Board	Firmware	Color Wheel	Lamp Module
Version Update	v	v		
Color Wheel Index	v		v	
Reset lamp hour				v
OSD	v	v		
EDID	v			
Re-write Lamp Hour Usage	v			

Note: If Color appears abnormal after changing Main Board Module,

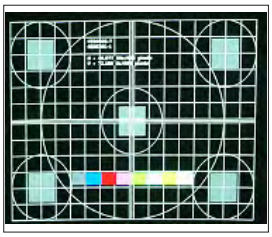
please do Color Wheel index adjustment.

4-6 PC MODE

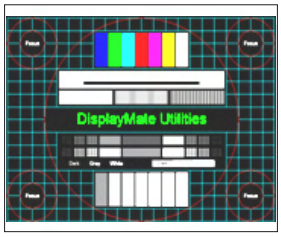
1. Frequency and tracking boundary

Procedure

- Test equipment: video generator.
- Test signal: analog 800 X 600@60Hz
- Test Pattern: general-1 or master
- Check and see if the image sharpness is well-performed.
- If not re-adjust by the following steps:
  (1) Select "Frequency" function to adjust the total pixel number of pixel clock in one line period.
  (2) Select "Tracking" function and use right or left arrow key to adjust the value to minimize video flicker.
- Adjust Resync or Frequency/Tracking/H. Position/V. Position to the inner screen.



General-1



Master

Inspection item

- Eliminate visual wavy noise by Rsync, Frequency or Tracking selection.
- Check if there is noise on the screen.
- Horizontal and vertical position of the video should be adjustable to the screen frame.

Criteria
- If there is noise on the screen, the product is considered as failure product.
- If there is noise on the screen, use auto or manual “frequency” function or “tracking” function to adjust the screen.
- The PC mode functionally sure be workable include support format with frequency and auto detected functional will be workable.

2. Light Leak

Procedure
- Test equipment: video generator.
- Test signal: analog 800 X600@60Hz
- Test Pattern: gray 30 patterns
- Check if the light leaks.

* Light leak on reflective edge, eyecatcher, bond-wires and exposed metal.

Gray 30

Inspection item
- Light leak check.
- Bright blemish (dirty).

Criteria
- The pattern cannot accept the color level of the leakage is brighter than the gray 30 pattern.
- Ref. Defect specification table

Note: The defect criteria follows TI specification.

3. Blemish (Dark)

Procedure
- Test equipment: video generator.
- Test signal: analog 800 x 600@60Hz.
- Test Pattern: blue 60

Inspection item
- Dark blemish check.(dirty)

Criteria
- The bright blemish is unacceptable when it appears on blue 60 pattern.
- Ref. Defect specification table

Note: The defect criteria follows TI specification.

Blue 60

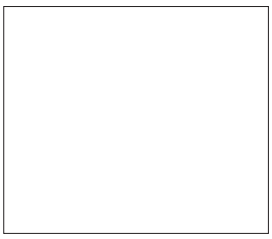
4. Dead Pixel (Bright pixel)

Procedure	- Test equipment: video generator. - Test signal: analog 800 x 600@60Hz. - Test Pattern: full black
Inspection item	- Bright pixel check. Note: Frame dimension under operative zone 1 inch
Criteria	- Bright pixel is unacceptable. - Ref. Defect specification table Note: The defect criteria follows TI specification.

Full black

5. Dead Pixel (Dark pixel)

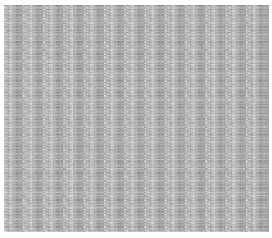
Procedure	- Test equipment: video generator. - Test signal: analog 800 x 600@60Hz. - Test Pattern: full white
Inspection item	- Dead pixels check. - White pattern (IRE=100) - Adjacent dark pixel.
Criteria	- The number of the dead pixels should be less or equal to 6 pixels. - Adjacent pixel with each other is unacceptable. - Ref. Defect specification table Note: The defect criteria follows TI specification.



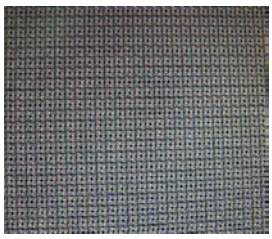
Full white

6. Focus Test

Procedure	- Test equipment: video generator. - Test signal: analog 800 x 600@60Hz - Test Pattern: full screen or MEME Sony
Inspection item	- Focus check
Criteria	- From screen 1.7 M via visual to check the focus, look at the entire screen, focus shall be clear, crisp, and sharp over the entire surface of the display pattern. (Blur word on one of the corner after adjustment is acceptable. However, the word should at least be recognizable.)



Full screen



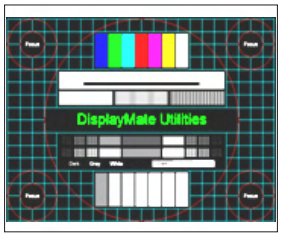
MEME Sony

7. Color performance

Procedure

- Test equipment: video generator.
- Test signal: DVI (HDMI) 720p,1080i
- Test Pattern: Master, In focus II or SMPTE RP-133

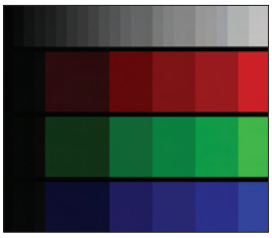
* Please refer to 4-2 to get into service mode. Use 720P & 1080i signal, master pattern to do HDTV test. Color cannot discolor to purple and blue.



Master

Inspection item

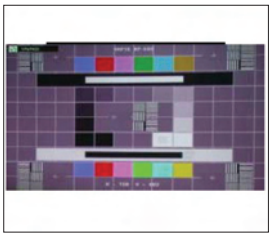
- Check if each color level is well-functioned.
- color saturation



InFocus II / 64 gray RGBW

Criteria

- Screen appears normal. It should not have any abnormal condition, such as lines appear on the screen and so on.
- Color appears normal.
- It is acceptable to have few lines flashing at the center and on the edge of 1080i image. However, rest of the image should appears stable.
- RGBW should all appear normal on the screen and sort from R -G-B-W.
- Color levels should be sufficient and normal. (the unidentified color levels on both left and right sides should not over 8 color levels.)
- Grey level should not have abnormal color or heavy lines.
- The PC mode functionally sure be workable include support format with frequency and auto detected functional will be workable



SMPTE RP-133

Defect specification table

Order	Symptom	Pattern	Criteria
1	Bright pixel (dots)	Black pattern (IRE=O)	A+B=0
2	Dark pixel(dots)	White pattern	A+B=6
3	Unstable pixel (dots)	Any pattern	A+B=1
4	Adjacent dark pixel (dots)	Any pattern	A+B=0
5	Dark blemish (Dirty)	Blue 60 pattern	A+B=3 (diameter <1/2 inch)
6	Bright blemish (Dirty)	Gray 30 pattern	A+B=3 (diameter <1/2 inch)
7	Bright dot on frame	Black pattern	2

4-8 Video Performance

1. CVBS

Procedure - Test equipment: DVD player
- Test signal: CVBS

Inspection item - Video performance test

Inspection Distance - 1.7M

Criteria - Check any abnormal color, line distortion or any noise on the screen.
- Check the sound from speakers.

Motion video

2. S-Video

Procedure - Test equipment: DVD player
- Test signal: S-Video

Inspection item	- Video performance test
Inspection Distance	- 1.7 M
Criteria	- Check any abnormal color, line distortion or any noise on the screen. - Check the sound from speakers.

3. HDTV/ Component

Procedure	- Test equipment: DVD player - Test signal: Ycbcr/YPbPr
Inspection item	- HDTV performance test
Inspection Distance	- 1.7 M
Criteria	- Check any abnormal color, line distortion or any noise on the screen. - Check the sound from speakers.

4. Audio Test

Procedure	- Test equipment: DVD player - Test signal: CVBS
Inspection item	- Audio performance test
Criteria	- Check the sound from speakers. - Check “Volume” is normal - Check “Mute” is normal

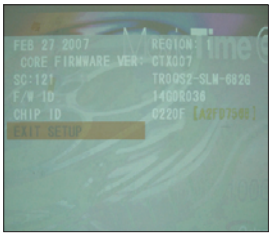
4-9 DVD Function Check

Material	- DVD
Procedure	- Put DVD into DV11 - Press "play" and check if the display image is normal - Check DVD keypad function (FWD, REW, STOP, Volume +/-)

logo

Check region
- Turn on the unit and wait until the image appears on the screen.
- press “1”, “2”, “3”, “4” buttons on remote control to check if the region code is right or not

Criteria
- Logo image appears



check region

4-10 Optical Performance Measure

Inspection Condition
- Environment luminance: 5 Lux
- Product must be warmed up for 3 minutes
- Distances from the screen: <Max. zoom & 60 inches diagonal> 1.7 M
- Screen Size: 60 inches diagonal
- Reset to default before measurement.

1. Test equipment

Procedure
- Test equipment: video generator.
- Test signal: analog 800 x600 @60Hz.

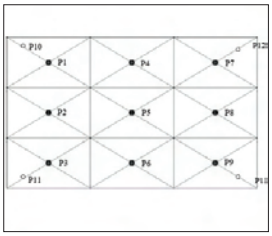
2. Brightness

Procedure
- Full white pattern
- Use CL100 to measure brightness values of P1~P13.
- Follow the brightness formula to calculate brightness values.

☼ Brightness Formula

Avg. (P1+P2+P3+...+P9) x 1.1

Criteria
• 495 Lumens



Full white pattern

3. Full On/Full Off Contrast

Procedure
- Full white pattern & full black pattern
- Use CL100 to measure brightness values of full white pattern P5 & full black pattern B5 (see image: full white)
- Follow Contrast formula to calculate contrast values.

☼ Contrast Formula

P5/B5

note: P5=center of white image

B5 = the center of black image.

Full black pattern

Criteria
- 1300:1

4. Uniformity

Procedure
- Full white pattern
- Use CL100 to measure brightness values of P1~P13 (see image: full white).
- Follow the Uniformity formula to calculate average values.

☼ Uniformity Formula

$$\text{ANSI Uniformity} = \frac{\text{Avg. (P1, P3, P7, P9)}}{\text{P5}} \times 100\%$$

Criteria
- 75 %

4-9 Others

1. Functional Inspection

Keypad button
- All keypad buttons must operate smoothly.

General
- All OSD functions must be

	checked for functionality. When OSD menu is displayed, there shall be no visible peaking, ringing, streaking, or smearing artifacts on the screen.
Factory Default	- The factory settings (with appropriate centering, size, geometry distortion, etc.) shall be displayed upon “Recall” is selected from OSD
Display Size	- All preset modes shall expand to full screen size using OSD Horizontal and Vertical Size controls
Display Data Channel (DDC)	- The purpose of the DDC test is to verify the DDC1/DDC2B operation of the projector and to verify Plug & Play function.
Acoustic	- High pitch sound from cooling fan and color wheel is unacceptable.

2. Check points for exterior and print pattern

Check item	Check point
text & pattern	missing letters & pattern or blurry prints are unacceptable.
exterior	dirt, scrape, water ripples and uneven color are unacceptable.
buttons	stuck buttons are unacceptable.
Focus ring	Focus ring is functioning smoothly.
Logo	missing logo, missing prints and blurry prints are unacceptable
screw	All screw sure be fixed and in right type.

Check item	Check point
elevator	Elevator is well-functioned. Stuck key is unacceptable.
pedestal	well-functioned
lamp cover	It should be locked in the correct place.
Plastic parts	All plastic parts can not be broken and damaged.
Safety or warning label	All safety and warning label should be visible, including all contents.
Connector	All interface connectors should be complete and workable.

Chapter 5

Firmware Upgrade

5-1 Equipment Needed

Software : (DDP 2000- USB)

- DLP Composer
- Firmware
- Library file (library file has to put in PC and set right path in step 5)

Hardware :

- Projector
- Power code
- USB Cable
- PC or Laptop

Note: The FW Upgrade procedure for DVD100 / U2 / U3 is the same as DV11, we take DV11 for example here.

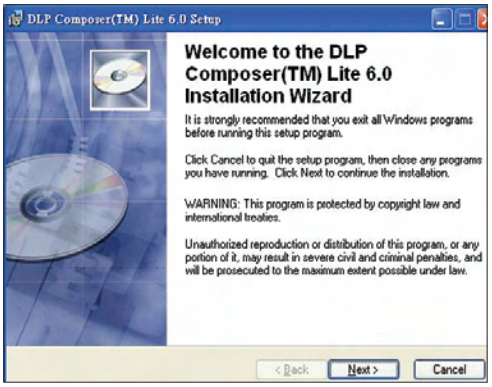
5-2 DLP Composer Lite Setup Procedure

1. Choose “DLP Composer Lite V6.0 Setup” Program.

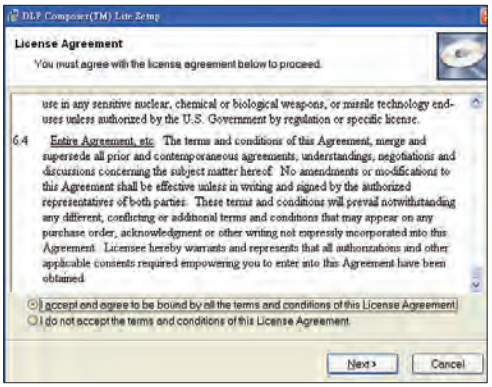
2. Click “Next” buttom

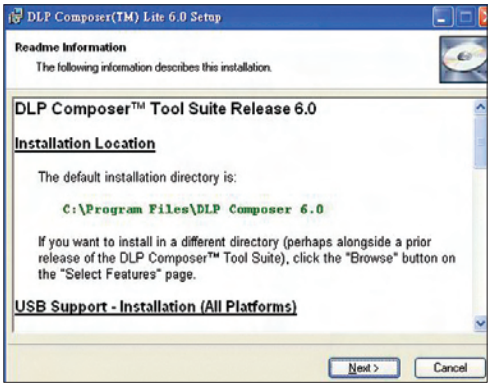
3. Read “License Agreement.”

   - Choose “I aacept and agree to be bound by all the terms and conditions of this License Agreement.”

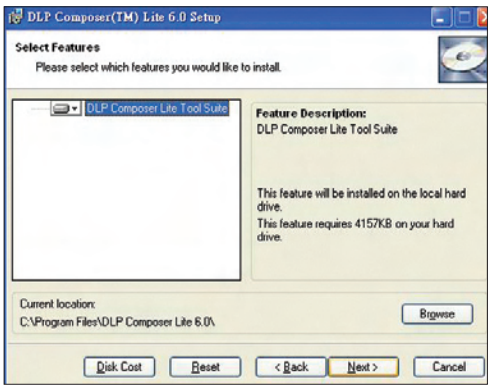

DLP Composer(TM) Lite 6.0 Setup
Welcome to the DLP Composer(TM) Lite 6.0 Installation Wizard
It is strongly recommended that you exit all Windows programs before running this setup program.
Click Cancel to quit the setup program, then close any programs you have running. Click Next to continue the installation.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
< Back
Next >
Cancel

4.. Click “Next.”

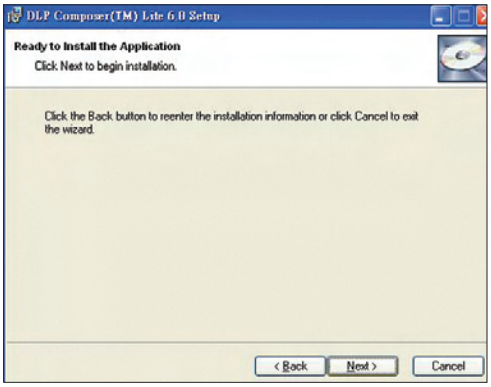

DLP Composer(TM) Lite Setup
License Agreement
You must agree with the license agreement below to proceed.
use in any sensitive nuclear, chemical or biological weapons, or missile technology end-uses unless authorized by the U.S. Government by regulation or specific license.
6.4 Entire Agreement, etc. The terms and conditions of this Agreement, merge and supersede all prior and contemporaneous agreements, understandings, negotiations and discussions concerning the subject matter hereof. No amendments or modifications to this Agreement shall be effective unless in writing and signed by the authorized representatives of both parties. These terms and conditions will prevail notwithstanding any different, conflicting or additional terms and conditions that may appear on any purchase order, acknowledgment or other writing not expressly incorporated into this Agreement. Licensee hereby warrants and represents that all authorizations and other applicable consents required empowering you to enter into this Agreement have been obtained.
I accept and agree to be bound by all the terms and conditions of this License Agreement
I do not accept the terms and conditions of this License Agreement
Next >
Cancel


DLP Composer(TM) Lite 6.0 Setup
Readme Information
The following information describes this installation.
DLP Composer™ Tool Suite Release 6.0
Installation Location
The default installation directory is:
C:\Program Files\DLP Composer 6.0
If you want to install in a different directory (perhaps alongside a prior release of the DLP Composer™ Tool Suite), click the "Browse" button on the "Select Features" page.
USB Support - Installation (All Platforms)
Next >
Cancel

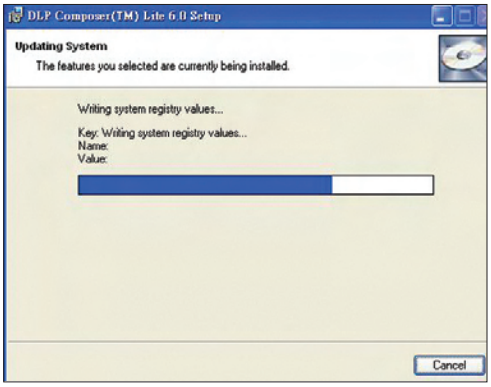
5. Click “Next.”


DLP Composer(TM) Lite 6.0 Setup
Select Features
Please select which features you would like to install.
DLP Composer Lite Tool Suite
Feature Description:
DLP Composer Lite Tool Suite
This feature will be installed on the local hard drive.
This feature requires 4157KB on your hard drive.
Current location:
C:\Program Files\DLP Composer Lite 6.0\
Browse
Disk Cost
Reset
< Back
Next >
Cancel

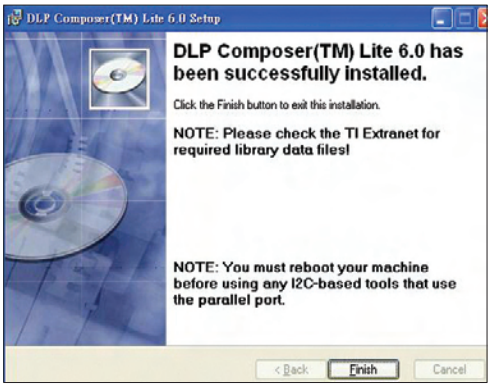
6. Click “Next.”


DLP Composer(TM) Lite 6.0 Setup
Ready to Install the Application
Click Next to begin installation.
Click the Back button to reenter the installation information or click Cancel to exit the wizard.
< Back
Next >
Cancel

7. Writing system registry values



8. Click “Finish.”


DLP Composer(TM) Lite 6.0 Setup
DLP Composer(TM) Lite 6.0 has been successfully installed.
Click the Finish button to exit this installation.
NOTE: Please check the TI Extranet for required library data files!
NOTE: You must reboot your machine before using any I2C-based tools that use the parallel port.
< Back
Finish
Cancel

5-3 USB Driver Upgrade Procedure

1. set up

   - Hold on “menu” and plug in power cord.

   - When the power, lamp and temp LED lights up, plug in USB cable into the projector and link to the USB port of a PC. (Power LED light in green; Temp/lamp light in red.)

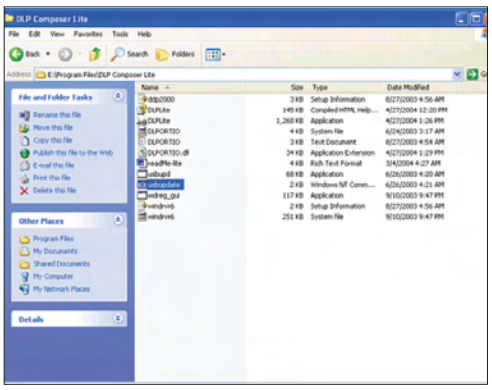
Note: The system fan and the light will not operated.

2. Execute Program

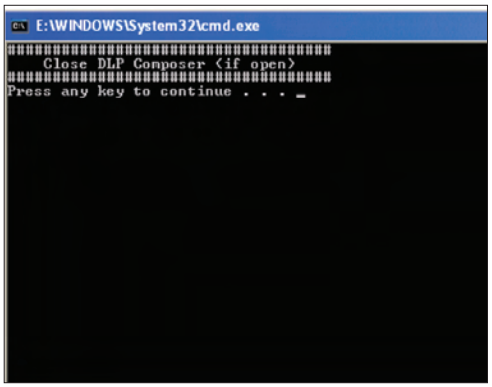
   - Open the “DLP Composer Lite V6.0” folder.

   - Select and double click “usbupdate.cmd”.

   Note: “DLP Composer” must be closed first.

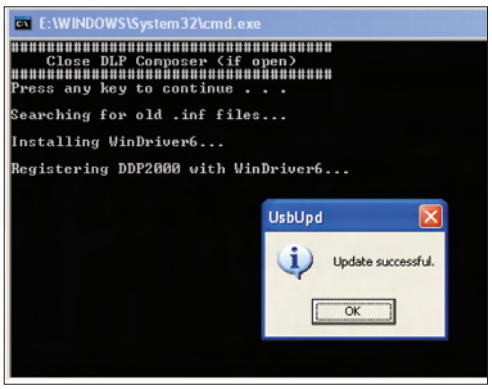


3. Press any key to continue and wait for about 1 minute.



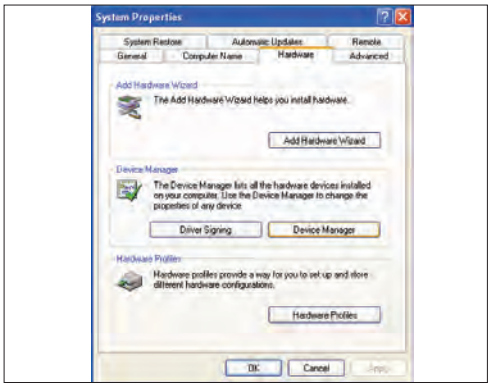
4. Update Successfully.

   - Click “OK”.

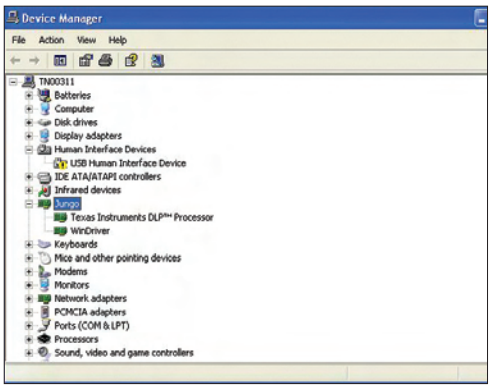


5. Device Manager

- Right click “My Computer” on the desktop.
- Select “Properties” on the popup menu to launch the “system properties” window.
- Choose “Hardware” and then click “Device Manger”.



6. Click “Jungo” to ensure “ DDP 2000” and “Windriver” are properly installed. If not, repeat the above steps.



Note: If you have installed the USB driver, there is no need to perform this action.

5-4 Firmware Upgrade Procedure

1. Set-up

   - Hold on “menu” and plug in power cord .

   - Once power, lamp and temp LED lights up, plug in USB cable into the projector and link to the USB port of a PC.

   Note: The system fan and the light will not operated.

2. Execute the “DLP Compose™” file.

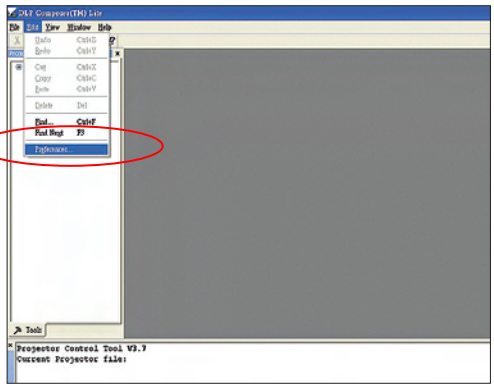
3. Click “edit” and “perferences.”

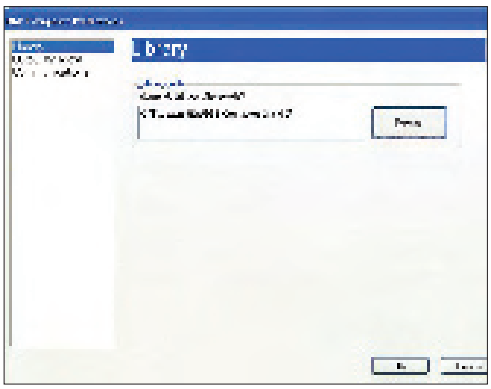
4. Click “Library.”

   - The library path located in the default installation directory.

   - C:\Program Files\DLP Composer Lit 6.0

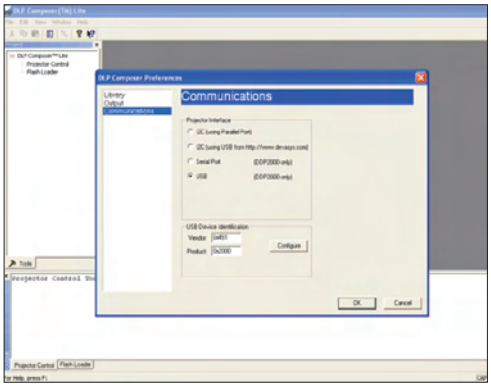
   Note: If not, press “Browse” to select the right path.





5. Select “Edit\preferences\Communications”

- choose “USB.” Click “OK.”

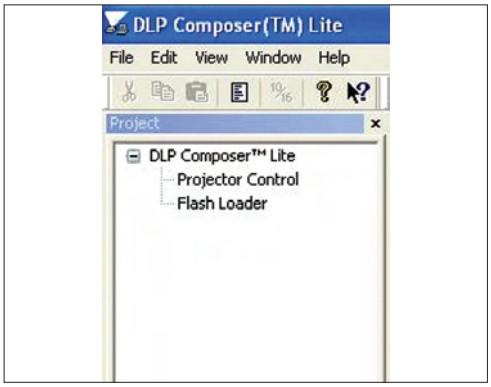


6. Choose “Flash Loader.”

- Click “Browse” to search the firmware file.

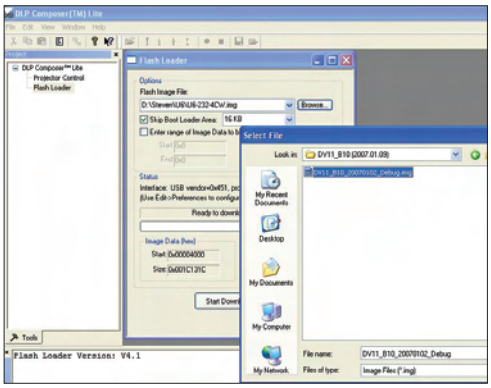
7. Selete the item “skip Boot Loader Area (select 16KB)

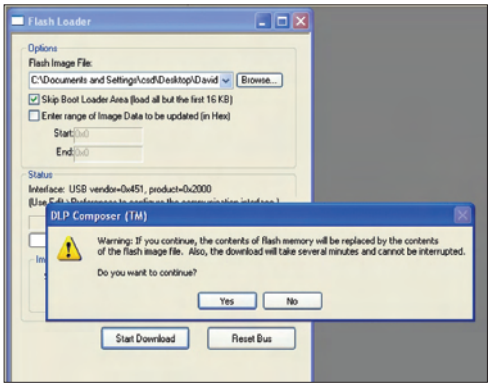
- Click “Reset Bus” to erase the flash memory



8. If the firmware is ready, click “start download” to process the firmware upgrade.

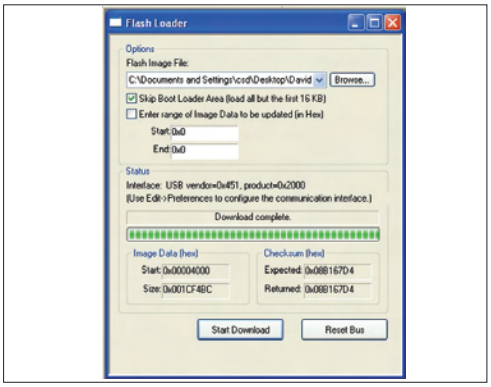
- Click “Yes” to erase the flash memory.




Flash Loader
Options
Flash Image File:
Browse...
Skip Boot Loader Area (load all but the first 16 KB)
Enter range of Image Data to be updated (in Hex)
Start:
End:
Status
DLP Composer (TM)
Warning: If you continue, the contents of flash memory will be replaced by the contents of the flash image file. Also, the download will take several minutes and cannot be interrupted.
Do you want to continue?
Yes
No
Start Download
Reset Bus

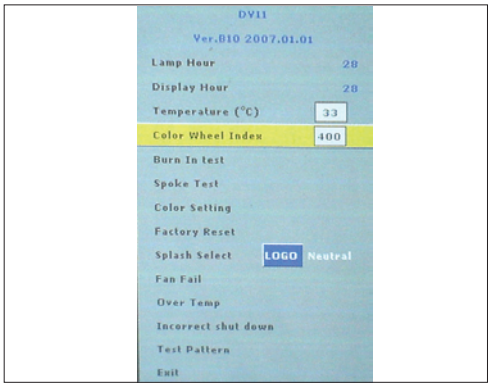
9. When firmware upgrade process is finished, the unit return to stand-by status. The LED power lights on and appears blue.

   - Unplug USB cable and power cord and replug in power cable.



10. Restart the unit and get into the service mode to check the firmware version.

    (To get into service mode, please refer to Chapter 4 Funcation Test and Alignment Procedure.)



5-5 DVD region code

1. Region 1 - America
2. Region 2 - Europe, England, Japan
3. Region 3 - ROW, Taiwan, Hong Kong
4. Region 4 - South America, Australia
5. Region 5 - Pan-EMEA, Indian
6. Region 6 - China

5-6 DVD Code Installation Procedure

1. Turn on DV11 unit and wait until the right image shows on the screen (signal source is from DVD loader)

2. Put the DVD code CD into DVD loader. The CD will be running automatically.

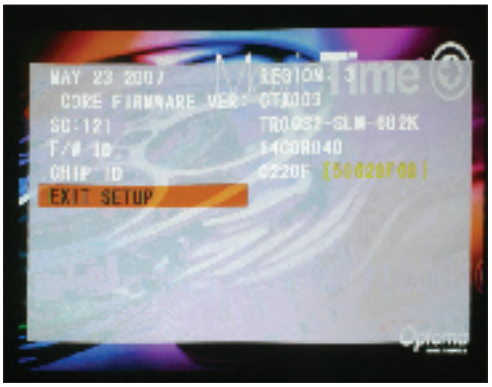
Note: If you do not have the CD, please do the following steps:

(1) A CD-RW burner to make the CD is needed

(2) Make sure that the file name in the CD MUST be dvdrom.bin

3. Please wait until the installation process finish. The CD will eject automatically

4. Press the number buttons, 1 to 4, on the remote control to check if the DVD code is correct or not



Chapter 6

EDID Upgrade

6-1 EDID Introduction

Extended Display Identification Data is a VESA standard data format that contains basic information about a display device and its capabilities, including vendor information, maximum image size, color characteristics, factory pre-set timings, frequency range limits, and character strings for the monitor name and serial number.

The information is stored in the display and is used to communicate with the system through a Display Data Channel (DDC), which sites between the display device and the PC graphics adapter. The system uses this information for configuration purposes, so the monitor and system can work together.

Note: - If a display device has digital input ports, like DVI or HDMI, but without EDID in its main board, the display device will show no image while the input source is digital signal.

- The EDID Upgrade procedure for DVD100 / U2 / U3 is the same as DV11, we take DV11 for example here.

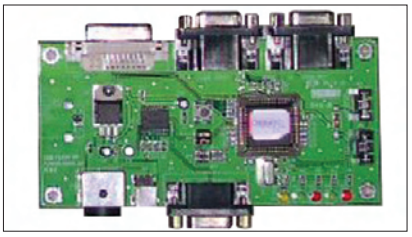
6-2 Equipment Needed

Software

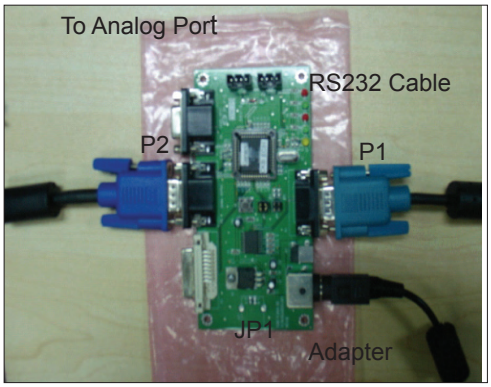
- EDID Program (Generic V0.51)
- EDID File (*.ini)

Hardware

- Projector
- Generic Fixture (80.00001.001) for EDID Key-in (Fixture: JP3 must be closed)
- Power code x 2
- RS-232 Cable (pin to pin, F-M)
- Monitor
- PC
- VGA cable
- Power adapter for fixture (47.57702G001)



6-3 Setup Procedure

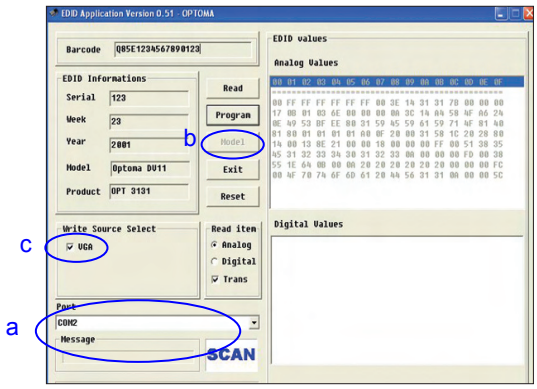


1. Connect all ports
   - Power adapter to fixture JP1
   - Fixture P1 to PC COM1 Port
   - Fixture P2 to Projector analog port
   - Power on fixture

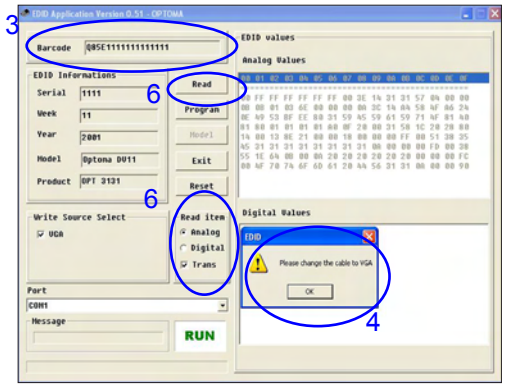
6-4 EDID Key-In Procedure

1. Click on "EDID" to execute EDID program

2. Choose model
   a. in the port selection bar, please choose the port that you use. ie: if you use "COM1," choose COM1 in the port selection.
   b. click on "Model."
   c. Select VGA in write source



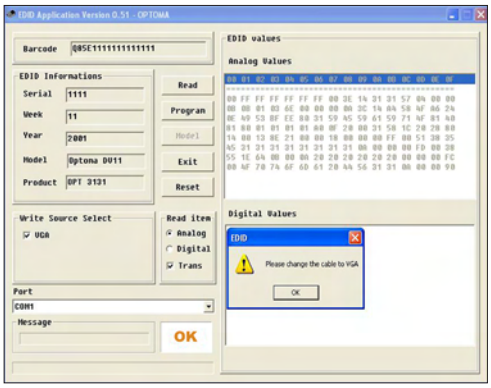
3. Key in the serial number into the barcode blank space and click "program" button



4. Change the cable to VGA1

   - Message box appears on the screen, then click "OK."

5. When the EDID program for VGA1 is completed, a message "OK" will appear on the screen.



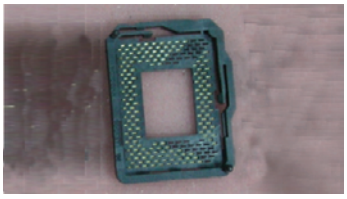
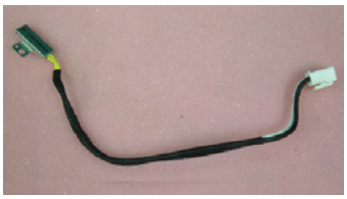
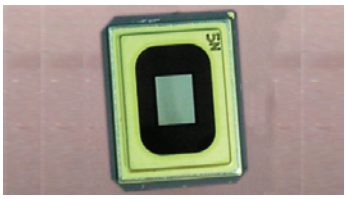
6. Read EDID information

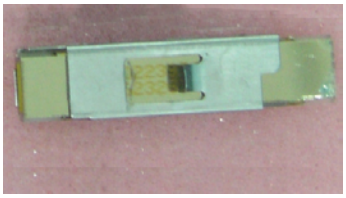
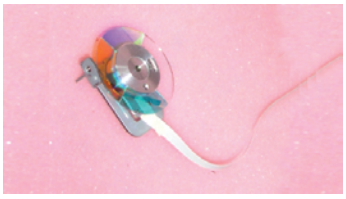
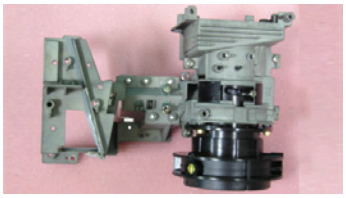
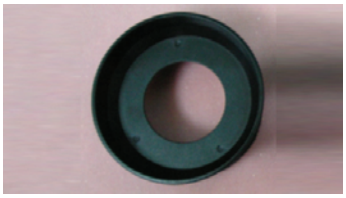
   - In the "read item," select "analog" and "trans"

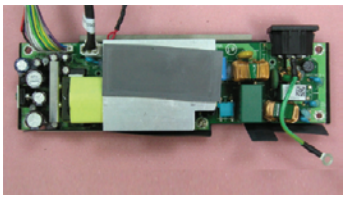
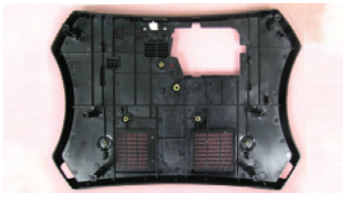
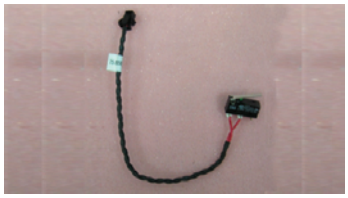
   - Press "read" to check the serial number

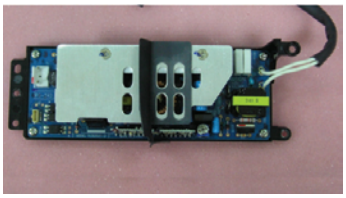
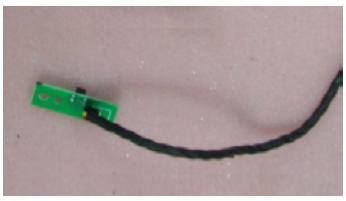
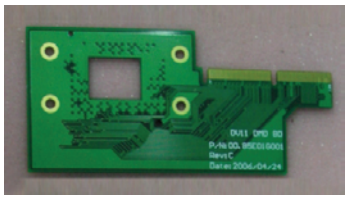
Note: If EDID upgrade failed, push the reset button on the EDID board and re-proceed step 3 to step 5 in section 6-4.

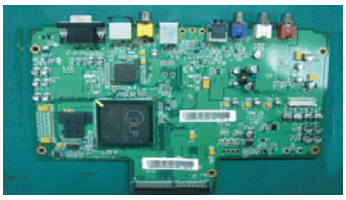
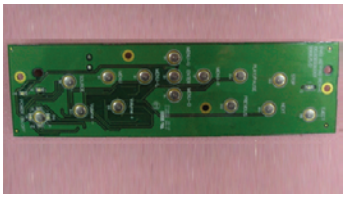
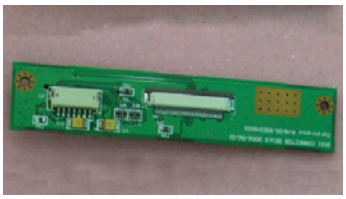
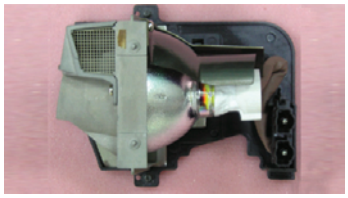
Appendix A (Spare Parts List)

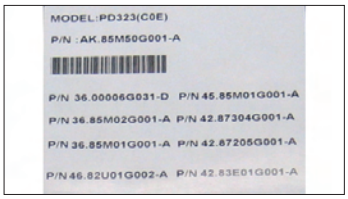
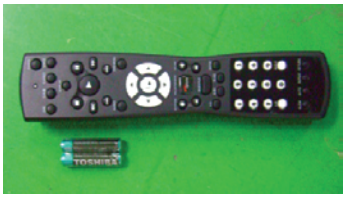
Item	P/N	Latest Rev	Description	Photo
1	11.009F0G005	C	CNNT F 166P FOR 0.55" SVGA LGA	
2	43.85E01G001	A	THERMAL SWITCH KLIXON 125 DEGR	
3	48.859DMGD13	A	DMD 800*600 PIXEL DDR FTP 0.55	
4	49.82Y02G001	A	SUSON 4520 BLOWER R TYP	
5	49.83J01G001	A	70x20 SYSTEM FAN, SU-NON GM1207	
6	51.85E14G001 (DV11) 51.85E14G001 (DVD100/U2/U3)	A	LAMP COVER TEIJIN PC(MN-3600H)	

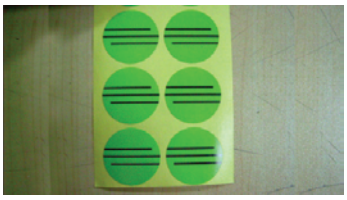
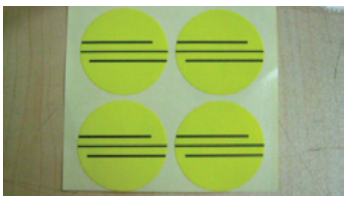
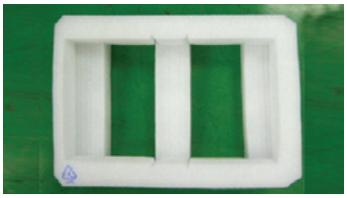
Item	P/N	Latest Rev	Description	Photo
7	51.85E25G001	B	ZOOM RING TEIJIN PC(MN-3600H)	
8	70.82G16GR01	A	ASSY ROD MODULE EP7190 (RMA)	
9	70.85E28GR01	A	ASSY COLOR WHEEL MODULE FOR DV11(RMA)	
10	70.85E29GR01	A	ASSY ENGINE MODULE DV11 (RMA)	
11	70.85E35GR01	A	ASSY FOCUS RING MOD-ULE DV11 (RMA)	
12	75.85E01G001	A	BUY ASSY SPEAKER MODULE HIBOX	

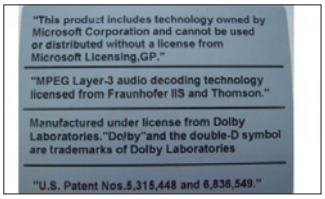
Item	P/N	Latest Rev	Description	Photo
13	75.85E04G001	B	ASSY LVPS Matritek DV11	
14	75.85E06G001	A	ASSY MULTI-MEDIA DRIVER KDRM08	
15	75.85E09G001 (DV11) 75.85E23G001 (DVD100/U2/U3)	A	BUY ASSY REAR COVER MODULE	
16	75.85E08G001	A	BUY ASSY FRONT COVER DV11	
17	75.85E11G001	A	BUY ASSY BOTTOM COV-ER MODULE DV11	
18	75.85E13G001	A	BUY ASSY INTERRUPT-ER SWITCH DV11	

Item	P/N	Latest Rev	Description	Photo
19	75.85E14G001	A	BUY ASSY LENS COVER MODULE DV11	
20	75.85E16G001 (DV11) 75.85E16G011 (DVD100) 75.85E22G001 (U2/U3)	B	BUY ASSY TOP COVER MODULE	
21	75.85E18G001	A	ASSY HITACHI LAMP DRIVER 180W	
22	75.85S15G001	A	BUY ASSY CEILING MOUNT MODULE HD70	
23	80.82G06G001	D	PCBA PHOTO SENSOR BOARD EP719 Active	
24	80.85E01G001	C	PCBA DMD BD FOR DV11	

Item	P/N	Latest Rev	Description	Photo
25	70.85E36GR01 (DV11) 70.85E40GR01 (DVD100) 70.85E39GR01 (U2/U3)	A	PCBA MAIN BD MODULE	
26	80.85E03G001	E	PCBA KEYPAD BD FOR DV11	
27	80.85E04G001	F	PCBA CONNECTOR BD FOR DV11	
28	80.85E05G001	B	PCBA FRONT IR SENSOR BD DV11	
29	80.85E06G001	B	PCBA TOP IR SENSOR BD DV11	
30	SP.85E01GC01	A	LAMP CHANGER MOD-ULE DV11	

Item	P/N	Latest Rev	Description	Photo
31	35.82001G111	A	LABEL CARTON 3"*3" BLANK PJ885	
32	36.85E04G001	A	USER'S MANUAL FOR USA/ASIA	
33	45.85E01G001	A	REMOTE CONTROL DV11	
34	42.86502G101	A	ADAPTER D-SUB TRANS-FORM RCA	
35	42.87205G201	A	CABLE COMPOSITE VIDEO	
36	35.52302G091	A	LABEL CARTON 108*92 BLANK	

Item	P/N	Latest Rev	Description	Photo
37	35.00040G001	A	LABEL 30mm,GREEN	
38	35.00041G001	A	LABEL 35mm,YELLO	
39	35.00042G001	A	"FRAGILE" TAPE 60mm*50Y*0.05mm	
40	56.85E01G001	A	CUSHION DV11	
41	55.85E01G001	A	CARTON OPTOMA LOGO DV11	
42	35.85E01G001	A	SPEC LABEL 104*65 DV11	

Item	P/N	Latest Rev	Description	Photo
43	35.85E03G001	A	LICENCE LABEL 70*50 DV11	 "This product includes technology owned by Microsoft Corporation and cannot be used or distributed without a license from Microsoft Licensing,GP." "MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Thomson." Manufactured under license from Dolby Laboratories."Dolby"and the double-D symbol are trademarks of Dolby Laboratories "U.S. Patent Nos.5,315,448 and 6,836,549."

Appendix B

I. Serial Number System Definition

Serial Number Format for Projector

Q	85E	7	04	E	AAAA	C	0001
①	②	③	④	⑤	⑥	⑦	⑧

① : **Q = Optoma**

② : **86E = Project code**

③ : **7 = Last number of the Manufacture year (ex:200<u>7</u> = 7)**

④ : **04 = week of the year (ex: the forth month of the year = 04)**

⑤ : **E = Checking EDID code ("E" = EDID code is for EMEA)**

⑥ : **AAAA = not-defined**

⑦ : **C = Manufacture factory (TW or CPC)**

⑧ : **0001 = Serial code**

EX: Q85E714AAAAAC0001

This label represents the serial number for DV11. It is produced for USA at CPC on fourteenth week of 2007. Its serial code is 0001.

II. PCBA Code Definition

PCBA Code for Projector

A	B	XXXXXXXXXX	C	XXX	EEEE
①	②	③	④	⑤	⑥

① : ID

② : Vendor Code

③ : P/N

④ : Revision

⑤ : Date Code

⑥ : S/N